

WHAT IS CLAIMED IS:

1 1. A method comprising:
2 establishing a communication path between a mobile-device
3 in a first-communication-area and a server through a home-
4 device; and
5 maintaining the communication path through the home-
6 device when the mobile-device moves to a second-communication-
7 area.

1 2. The method of claim 1 including using respective program
2 layers below transmission control protocol/internet protocol
3 (TCP/IP) program layers in the mobile-device and the home-
4 device to establish the communication path and maintain the
5 communication path.

1 3. The method of claim 1 including maintaining the
2 communication path through the mobile-device when moving from
3 the first-communication-area associated with a first-subnet to
4 a second-communication-area associated with a second-subnet.

1 4. The method of claim 1 comprising:
2 assigning a home-address associated with the home-device
3 to the mobile-device;
4 assigning a first-real-address associated with a first-
5 communication-area to the mobile-device; and

6 detecting the mobile-device's movement into the second-
7 communication-area.

1 5. The method of claim 4 including assigning a second-real-
2 address associated with the second-communication-area to the
3 mobile-device.

1 6. The method of claim 5 including generating the first-
2 real-address and the second-real-addresses from a server using
3 dynamic host configuration protocol (DHCP).

1 7. The method of claim 4 including maintaining the
2 communication path when the mobile-device moves from the
3 first-communication-area associated with a first-subnet to the
4 second-communication-area associated with a second-subnet.

1 8. The method of claim 4 including detecting movement into
2 the second-communication-area is performed by the mobile-
3 device.

1 9. A method comprising:
2 generating a request from a mobile-device, the request
3 comprising a request-layer including a home-address of the
4 mobile-device and a server-address;
5 encapsulating the request-layer with a roaming-layer
6 including a real-address of the mobile-device and a home-
7 device-address; and

8 communicating the encapsulated request-layer to a home-
9 device based on the home-device-address.

1 10. The method of claim 9 comprising:

2 removing the roaming-layer from the encapsulated request-
3 layer; and

4 communicating the request-layer from the home-device to a
5 server based on the server-address.

1 11. The method of claim 10 comprising:

2 generating a response to the request from the home-device
3 to the server, the response including a response-layer having
4 the server-address and the home-device-address; and

5 communicating the response to the home-device.

1 12. The method of claim 11 further comprising:

2 encapsulating the response with a roaming-layer,
3 including the real-address and the home-address of the mobile-
4 device; and

5 communicating the encapsulated response to the mobile-
6 device.

1 13. The method of claim 9 including using a program layer
2 below a transmission control protocol/internet protocol
3 (TCP/IP) program layer in the mobile-device to generate the

4 request, ~~encapsulate~~ the request-layer and communicate the
5 encapsulated request-layer.

1 14. The method of claim 9 including using a program layer
2 below a transmission control protocol/internet protocol
3 (TCP/IP) program layer in the home-device to modify the
4 encapsulated request-layer with the roaming-layer and
5 communicate the request-layer.

1 15. A communication system comprising:

2 a home-device;
3 a server; and
4 a mobile-device including a processor configured to:
5 generate a request from the mobile-device, the request
6 comprising a request-layer including a home-address of the
7 mobile-device and a server-address of the server,
8 encapsulate the request-layer with a roaming-layer
9 including a real-address of the mobile-device and a home-
10 device-address, and
11 communicate the encapsulated request-layer to the
12 home-device based on the home-device-address.

1 16. The system of claim 15 wherein the home-device includes a
2 processor configured to remove the roaming-layer from the
3 encapsulated request-layer and communicate the request-layer

4 from the home-device to the server based on the server-
5 address.

1 17. The system of claim 15 wherein the home-device includes a
2 processor configured to:

3 encapsulate a response with a roaming-layer, including
4 the real-address and the home-address of the mobile-device and
5 communicate the encapsulated response to the mobile-
6 device.

1 18. A mobile-device comprising:

2 a network-interface-adapter; and
3 a processor configured to:
4 generate a request comprising a request-layer
5 including a home-address of the mobile-device and a server-
6 address,

7 encapsulate the request-layer with a roaming-layer
8 including a real-address of the mobile-device and a home-
9 device-address, and
10 communicate the encapsulated request-layer through the
11 network-interface-adapter to a home-agent based on the home-
12 device-address.

13 .
1 19. The mobile-device of claim 18 including memory having a
2 program layer below a transmission control protocol/internet

3 protocol (TCP/IP) stack, the program layer storing
4 instructions for causing the processor to generate the
5 request, encapsulate the request, and communicate the
6 encapsulated request-layer to the home agent.

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1 20. A home-agent comprising:

2 a network-interface-adapter; and

3 a processor configured to:

4 receive a request-layer encapsulated with a roaming
5 layer, the request-layer including a server address,

6 remove the roaming-layer from the encapsulated
7 request-layer, and

8 communicate the request-layer through the network-
9 interface-adapter to a server based on the server-address.

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1 21. The home-agent of claim 20, the processor configured to:

2 receive a response from the server;

3 encapsulate the response with a roaming-layer including a
4 real-address and a home-address of the mobile-device, and

5 communicate the encapsulated response to the mobile-
6 device.

1 22. The home agent of claim 20 including memory having a
2 program layer below a transmission control protocol/internet

3 protocol (TCP/IP) stack, the program layer storing
4 instructions for causing the processor to encapsulate the
5 response and communicate the encapsulated response.

1 23. An article comprising a computer-readable medium that
2 stores computer-executable instructions for causing a computer
3 system to:

4 assign a home-address associated with a home-device to a
5 mobile-device;

6 assign a first-real-address associated with a first-
7 communication-area to the mobile-device; and

8 detect movement of the mobile-device into a second-
9 communication-area.

1 24. The article of claim 23 including instructions for
2 causing the computer system to assign a second-real-address
3 associated with the second-communication-area to the mobile-
4 device.

1 25. An article comprising a computer-readable medium that
2 stores computer-executable instructions for causing a computer
3 system to:

4 generate a request from a mobile-device, the request
5 comprising a request-layer including a home-address of the
6 mobile-device and a server-address;

7 encapsulate the request-layer with a roaming-layer
8 including a real-address of the mobile-device and a home-
9 device-address; and

10 communicate the encapsulated request-layer to a home-
11 device based on the home-device-address.

1 26. The article of claim 25 including instructions for
2 causing the computer system to:

3 remove the roaming-layer from the encapsulated request-
4 layer; and
5 communicate the request-layer from the home-device to a
6 server based on the server-address.

1 27. The article of claim 25 including instructions to:

2 generate a response to the request from the home-device
3 to a server, the response including a response-layer
4 containing the server-address and the home-device-address; and
5 communicate the response to the home-device.

1 28. The article of claim 25 including instructions to:

2 encapsulate the response with a roaming-layer including
3 the real-address and the home-address of the mobile-device;
4 and
5 communicate the encapsulated response to the mobile-
6 device.